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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,133	02/05/2002	Howard Kaufman	23328-015003	8486
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EXAMINER				
MOSS, KERI A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/068,133

Applicant(s)

KAUFMAN ET AL.

Examiner

KERI A. MOSS

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33,34,42,43,46,48,49,54-56,59-70,72-81 and 83-87 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33,34,42,43,46,48,49,54-56,59-70,72-81 and 83-87 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 12, 2008 has been entered.

Response to Amendment

2. The rejections under Hochman et al. have been withdrawn in light of applicants' arguments.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims **33, 42-43, 48-49, 54-56, 60, 63-67, 70, 83 and 87** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung et al (USP 5,880,826) in view of Kobayashi et al. (JP 11-190776). Jung et al. teach a method for determining optical characteristics of a sample by obtaining spectral data from a sample as a function of location and obtaining a plurality of sequential images of the sample using a camera wherein a probe obtains the spectral data and a plurality of sequential images (Column

40 line 63-column 42 line 12; Figs 32-34). The spectral data comprises reflectance or fluorescence data or both (paragraph bridging columns 3-4). The method further comprises determining a characteristic of an area of the sample comprising detecting an artifact that comprises an extraneous portion of an optical field of view (claim 1). The spectral data are obtained at substantially the same time the images are obtained (Column 40 line 63-column 42 line 12; Figs 32-34). The sample is in vivo tissue (mouth). The determining step comprises accounting for glare (claim 1; columns 18-19). The probe comprises a video camera and is coupled to a spectrometer (Column 40 line 63-column 42 line 12; Figs 32-34).

5. Jung et al reveal that a weakness in the disclosed invention is that it does not work properly when the probe is moved angularly or laterally relative to the sample (paragraph bridging columns 17 and 18). The data is rejected when there is suspicion that the probe was moved in a non-perpendicular or otherwise unstable manner relative to the sample (paragraph bridging columns 17 and 18). Thus, Jung et al do not expressly teach a method of compensating for sample motion by aligning a subset of a plurality of images.

6. Kobayashi et al. teach a method for compensating for sample motion relative to the camera comprising the steps of applying a chemical agent to a sample (radiopharmaceutical), obtaining a plurality of sequential images to compensate for sample motion, wherein the sample motion is a relative motion between the sample and the cameras and correcting the location according to the aligned images (claim 1). The chemical agent interacts with the sample to alter an optical signal produced by the

sample (claim 2). The system of Kobayashi comprises an article of manufacture having computer-readable program means with computer-readable instructions embodied thereon for performing the method of claim 33 (part 5). Location is corrected according to the aligned images (claim 3). The method also includes a step of determining an area of the sample for biopsy (paragraph [0005]).

7. Jung et al. and Kobayashi et al. are analogous art because they both involve optical imaging art and because Kobayashi solves a problem found in the art of Jung et al. MPEP 2141.01(a). It would have been obvious to one of ordinary skill in the art to improve the Jung et al. device and method by enabling the imaging means to compensate for relative motion between the sample and the probe in order to avoid rejecting data due to improper movement. Using the known technique of measuring the relative position of the camera to the sample and aligning images based on the image data to allow for movement between the camera and the sample would have been obvious to one of ordinary skill.

8. Claims **34, 46, 61-62, 68-69, 80-81, and 84** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung et al and Kobayashi et al, supra, and further in view of Richards-Kortum et al. (USP 6,241,662).

Jung et al foresees using the disclosed device and method for purposes other than dental measurements. Jung et al. teaches that the device and method may be used by medical professionals (column 22 lines 6-10). Jung et al and Kobayahsi et al. do not specifically teach using the device on human cervical tissue nor do they

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expressly teach applying the chemical agent topically to the sample. Richards-Kortum et al., like Jung et al. teaches a device and method for determining the characteristic of an area of a sample. Richards-Kortum et al. teaches a method of detecting tissue abnormalities using spectroscopy. The advantages of this technique are that it quickly, non-invasively and quantitatively probes the biochemical and morphological changes that occur as tissue becomes neoplastic (paragraph bridging columns 1 and 2). Measured spectral information is useful for developing clinically effective screening and diagnostic techniques, especially when combined with automated data analysis techniques (paragraph bridging columns 1 and 2). Incorporating the teachings of Richards-Kortum et al. into Jung et al. and Kobayashi et al. would enable medical uses of the Jung et al. and Kobayashi et al. device, such as detection of histopathological changes in tissue. Thus it would have been obvious to couple the diagnostic methods of Richards-Kortum with Jung et al. and Kobayashi et al. in order to gain the advantages of developing clinical screening and diagnostic techniques for detecting neoplastic tissue.

Jung et al. and Kobayashi et al. also do not disclose using a chemical agent selected from a group consisting of acetic acid, formic acid, propionic acid and butyric acid nor applying the agent to the skin nor sample comprising human cervical tissue. Richards-Kortum teaches using acetic acid specifically for epithelial tissue such as cervical (column 2 lines 43-65). Acetic acid is used to distinguish normal tissue from abnormal tissue (column 4 lines 47-67), specifically precancerous tissue such as CIN II or III (column 2 lines 56-65). An advantage of acetic acid is that it enhances the optical

return signal of illuminated tissue during fluorescence microscopy (column 2 lines 43-65). Therefore it would have been obvious to one of ordinary skill in the art to combine the imaging method of Jung et al. and Kobayashi et al. with Richards-Kortum's use of acetic acid as a chemical agent for enhancing the optical signal in fluorescence detection and with Richards-Kortum's use of cervical cells in order to gain the additional advantage of detecting abnormal cervical cells.

9. Claims **72-79 and 85-86** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung et al., Kobayashi et al, as applied to claims 33 and 83 above, and further in view of Maas, III et al (USP 5,850,486).

Jung et al. and Kobayashi et al. do not expressly teach aligning the images by cross-correlation, using a hamming window, or determining a translation. Mass III teaches methods of rotational and translation correction of images using cross correlation of sub-images of two sequential images (column 6 lines 39-47), alignment using a Hamming window (column 6 lines 48-60), determining a translation from cross-correlation (column 3 line 60-column 4 line 14) and validating the translation (column 5 line 50-column 6 line 24). The sequential images are successive images and may be gradient or sum-of-derivatives images (column 4 lines 57-67). Maas III teaches that in imaging when the subject moves, it is important to register the time-series of images to remove motion artifact (column 1 lines 34-46). Removing motion artifact would improve the accuracy of the image. Therefore, it would have been obvious for one of ordinary skill in the art to modify the method of Jung et al. and Kobayashi et al., with the

techniques taught in Maas III in order to remove the motion artifact, thereby improving the accuracy of the image.

Response to Arguments

10. Applicant's arguments, see Request for Continued Examination, filed March 12, 2008, with respect to the rejection(s) of claim(s) 33-34,42-43,46,48-49,54-56,59-70,72-81 under Hochman in view of Richards-Kortum have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Jung et al. and Kobayashi et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KERI A. MOSS whose telephone number is (571)272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797

/Keri A. Moss/
Examiner, Art Unit 1797